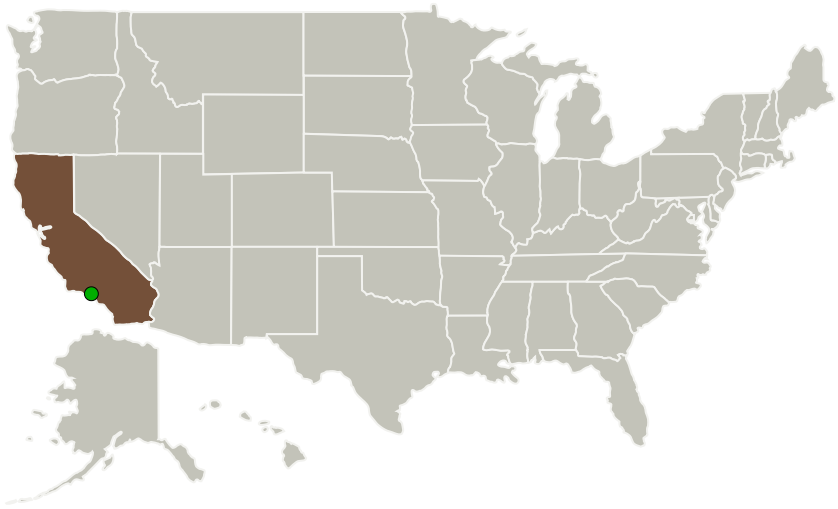
Titan Buoyant Atmospheric Glider, Phase I

Completed Technology Project (2016 - 2016)

Project Introduction

Your mission is to explore the atmosphere and surface of Saturn's moon, Titan, a cold, harsh environment that poses many technical challenges for any potential exploration platform. Imagine an inflatable, flying wing-glider that could enter Titan?s atmosphere from orbit, execute controlled movements in atmospheric flight, and descend to the surface for scientific measurement or payload delivery. The Titan-Buoyant Atmospheric Glider (T-BAG) system is a hybrid entry vehicle, balloon, and maneuverable glider with 3-D directional control that could satisfy all of these objectives while operating on the minimal power available from a Radioisotope Power Source (RPS). T-BAG's unique buoyancy control system is at the heart of the proposed innovation, enabling both ascending and descending glide without propulsion systems or control surfaces. Potential T-BAG mission applications include long-lived flight at low altitudes with revisit capability, high resolution surface imaging, in-situ measurements of precipitation, fog, volcanism, etc., and controlled, targeted delivery of landers to the surface.

Primary U.S. Work Locations and Key Partners



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Organizations Performing Work	Role	Type	Location
Global Aerospace Corporation	Lead Organization	Industry	Irwindale, California
Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

Primary U.S. Work Locations
California

Project Transitions

June 2016: Project Start

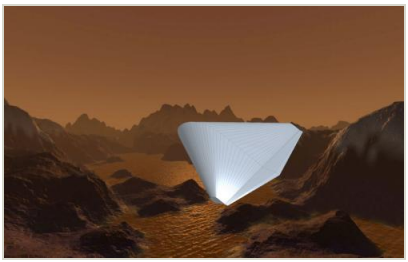
December 2016: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139503)*

Images

Briefing Chart Image
Titan Buoyant Atmospheric Glider, Phase I
(https://techport.nasa.gov/image/125990)



Final Summary Chart Image
Titan Buoyant Atmospheric Glider, Phase I Project Image
(https://techport.nasa.gov/image/130902)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
Global Aerospace Corporation

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

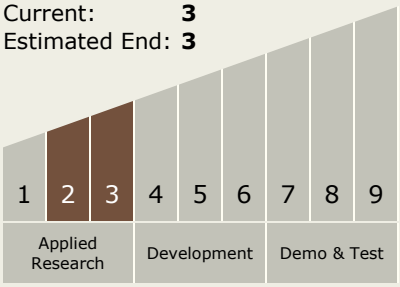
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Benjamin Goldman

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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Technology Areas

Primary:

- TX04 Robotic Systems
  - TX04.2 Mobility
    - TX04.2.4 Surface Mobility

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System